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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TO, JENNIFER N	

ART UNIT	PAPER NUMBER
2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	09/682,520	O'DOWD, ANTHONY JOHN	
	Examiner	Art Unit	
	Jennifer N. To	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-15 are pending for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Wisor et al. (hereafter Wiser) (U.S. Patent No. 6173395).

4. Wisor was cited in the previous office action.

5. As per claim 1, Wisor teaches the invention as claimed including a method for tracing the execution path of a computer program comprising at least one module including a plurality of instructions (col. 3, lines 1-2, to enable the user to trace the sequence of the execution of instructions), at least one of said instructions being a branch instruction (col. 4, lines 58-59, the stored data identifies whether or not certain branches in the test program was taken), the method comprising the steps of:

identifying each branch instruction (col. 6, lines 16-17, involves detecting the branch instructions); and

evaluating each branch instruction to be one of true and false, and in responsive to an evaluation of true, pushing at least one unique identifier into a predefined area of storage, wherein said at least one unique identifier itself uniquely identifies to a set of instructions executed as a result of said evaluation of true (col. 3, lines 11-21, when a test program is executed, a trace record is generated and stored in the BTHB (branch trace history buffer) ... the bitmap entries are generated for a series of conditional branches; col. 7, lines 47-48, 1's represent taken branches and 0's represent not-taken branches; fig. 3 and the corresponding sections of the disclosure, of which depicts one exemplary bitmap generated as a result of tracing, and is representative of one BTHB entry. Each 1 and 0 is uniquely assigned a bit position in the bitmap entry in the order that the branch is encountered within the program and is further more unique associated to the specific taken/not-taken branch. The condition taken/non-taken represents a true/false condition. Finally, the 1 is a unique identifier, which uniquely identifies to as set of instructions, which are "taken" branches).

6. As per claims 13-14, they are rejected for the same reason as claim 1 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wisor et al. (hereafter Wiser) (U.S. Patent No. 6173395).

9. Wisor was cited in the previous office action.

10. As per claim 2, Wisor teaches the invention substantially as claimed in claim 1. Wisor further teaches providing the predefined area of storage with memory (fig. 1, item 30). Wisor did not explicitly teach the memory as being volatile memory. However, the use of volatile memory is well known to one of an ordinary skill in the art at the time the invention was taken. As such, of an ordinary skill in the art at the time the invention was made would choose to utilize volatile memory for the system disclosed by Wisor for the purposes of freeing memory space when the computer is powered down and no longer in use.

11. As per claim 3, Wisor teaches the invention substantially as claimed in claim 1. Wisor further teaches providing the predefined area of storage with memory (fig. 1, item 30). Wisor did not explicitly teach the memory as being non-volatile memory. However, the use of volatile memory is well known to one of an ordinary skill in the art at the time the invention was taken. As such, of an ordinary skill in the art at the time the invention was made would choose to utilize volatile memory for the system disclosed by Wisor for

the purposes of retaining information in memory when the computer is powered down and no longer in use.

12. Claims 4-12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wisor et al. (hereafter Wiser) (U.S. Patent No. 6173395), and in view of Ayers et al. (hereafter Ayers) (U.S. Patent No. 6353924).

13. Wisor and Ayers were cited in the previous office action.

14. As per claim 4, Wisor teaches the invention substantially as claimed in claim 1. Wisor further teaches outputting the contents of the storage area at a predetermined point in time (col. 3, lines 22-24, the content of the BTHB and the test code are retrieved into the test station). Wisor did not specifically teach outputting the contents to a file. However, Ayers teaches that in an analogous trace recording system outputting trace sequence information to a file as claimed (col. 3, lines 60-61, the sequence information can be recorded ... to a disk file). It would have been obvious to one of an ordinary skill in the art at the time the invention was made to use the file saving capabilities of Ayers with trace recording system of Wisor, as this would enable a user to archive tracing records in the system disclosed by Wisor.

15. As per claim 5, Wisor further teaches outputting the trace information upon exit from at least one module (col. 9, lines 11-12, after a program is executed on the system under test, the contents of the BTHB are retrieved into the computer system).

16. As per claim 6, Wisor further teaches outputting the contents of the storage area at the same time as the exit trace information (col. 9, lines 11-12, after a program is executed on the system under test, the content of the BTHB are retrieved into the computer system).

17. As per claim 7, Wisor further teaches determining whether the storage area is full, and responsive to a positive determination, outputting the contents as claimed (col. 8, lines 34-35, tracing can be set to stop ... when the BTHB is full).

18. As per claim 8, Wisor teaches the invention substantially as claimed in claim 4. Wisor did not specifically teach determining whether a failure has occurred within the program, and responsive to a positive determination, outputting the contents to a file. However, Ayers teaches in an analogous trace recording system determining whether a failure has occurred and outputting the contents to a file (col. 9, lines 65-67, upon some triggering event such as a system crash, the post-processor writes out the sequence record). It would have been obvious to one of an ordinary skill in the art at the time the invention was made to use the failure-responsive outputting capabilities of Ayers with trace recording system of Wisor, as this would enable a user to obtain the exact

sequence of instructions that execute prior to a crash in the system disclosed by Wisor as stated in col. 2, lines 21-27 of Ayers.

19. As per claim 9, Wisor further teaches that determining whether the predefined area of storage is full, and overwriting the first unique identifier in the storage area (col. 8, lines 35-37, the buffer cab be set to wrap around so that the oldest entries are overwritten by the newest entries).

20. As per claim 10, Wisor further teaches writing the position of the most recent unique identifier to be written out to the storage area to said storage area (col. 9, lines 57-58, when a conditional branch is found, a counter is incremented, the counter represented the position).

21. As per claim 11, Wisor further teaches using the position to determine number of unique identifiers that have been overwritten (col. 9, lines 18-21, the BTHB contents are checked to determine whether the number of bits ... matches the corresponding number of conditional branches in the instruction sequence).

22. As per claim 12, Wisor teaches the invention substantially as claimed in claim 11. Wisor did not specifically teach increasing the size of the predefined area of storage. However, Ayers teaches in an analogous trace recording system increasing the size of the predefined area of storage (col. 6, lines 26-28, the buffer size limits the amount of

trace-back history... preferably this limit can be set dynamically). It would have been obvious to one an ordinary skill in the art at the time the invention was made to use the size-increasing capabilities of Ayers with the trace recording system of Wisor, as this would enable a user to obtain a larger amount of trace-back history in the system disclosed by Wisor.

23. As per claim 15, it is rejected for the same reason as claim 1 above. In addition, Wisor did not specifically teach a complier. However, Ayers teaches in an analogous recording system a compiler for instrument a computer program (fig. 4, items 311 and 313 and the corresponding sections of the disclosure). It would have been obvious to one of an ordinary skill in the art at the time the invention was made to use of a complier in the system of Wisor, as this would enable source code to be executed and subsequently traced.

Response to Arguments

24. Applicant's arguments filed 05/07/2007 have been fully considered but they are not persuasive.

25. In the remarks applicant argued that Wisor fails to teach or suggest the newly amended limitation "wherein said at lest one unique identifier itself uniquely identifies a set of instructions executed a result of said evaluation of true".

26. Examiner respectful disagreed. In light of the recent amendments incorporated with the records of all the previous response from examiner, the examiner maintained the rejection of Wisor, as the amendments do not substantially change the scope of the claim. The changing of "unique identifier uniquely corresponds to a set of instructions" to "unique identifier itself uniquely identifies a set of instructions" does not change the prior interpretation of the claim scope. The claimed language so broad that the claimed limitation unclear whether the unique identifier itself directly (as argued by applicant) or indirectly (as taught by Wisor) references to a set of instructions. Thus, based upon the broadest reasonable interpretation, examiner believed that Wisor taught the claimed limitation although the references interpretation in directly references a set of instruction as applicant tried to argue. Examiner suggest applicant to re-write the claimed limitation to further stated that "at least one unique identifier itself directly references a set of instructions executed as a result of said evaluation of true" to overcome the teaching of Wisor.

Conclusion

27. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Swaine (U.S. Patent No. 7134117), Duesterwald et al. (U.S. Publication No. 2002/0066081), Bala (U.S. Patent No. 6351844), Guthrie et al. (U.S. Patent No. 69447970), Bala (U.S. Patent No. 6470492), Levine et al. (U.S. Patent No. 5894575), Yeh et al. (U.S. Patent no. 5742804), Kulkarni (U.S. Patent no. 5941986), and Bala

(U.S. Patent No. 6233678 teach system and method for monitoring/tracing execution path of a computer program.

28. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer N. To whose telephone number is (571) 272-7212. The examiner can normally be reached on M-T 6AM- 3:30 PM, F 6AM- 2:30 PM.

30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

31. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer N. To
Examiner
Art Unit 2195

LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER